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EXAMINER

TARAE, CATHERINE MICHELLE

ART UNIT PAPER NUMBER

3623

DATE MAILED: 01/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/021,917

Applicant(s)

BERGSTROM, JOHN M.

Examiner

C. Michelle Tarae

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-11,13-24,26-34,36-44 and 46-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-11,13-24,26-34,36-44 and 46-55 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 10, 2005 has been entered.

Claims 1, 11, 24, 34, 44 and 54 have been amended. Claim 55 has been newly added. Claims 2, 12, 25, 35 and 45 have been previously canceled. Claims 1, 3-11, 13-24, 26-34, 36-44 and 46-55 are now pending in this application.

Response to Amendment

2. Applicant's amendments to claims 1, 11, 24, 34, 44 and 54 and addition of claim 55 are acknowledged.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-55 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 11, 24, 34, 44 recite determining a profit function from a corresponding demand distribution for... a probability associated with inventory replenishment. While the limitation states that the probability has *something* to do with inventory replenishment, what the probability is exactly for is not clear. Therefore, the claims are vague and indefinite as one of ordinary skill in the art could only guess at what about inventory replenishment the probability value is supposed to represent.

Claim 55 recites, wherein the probability corresponds to finding any number of units of an item on a store shelf. It is unclear if the probability of finding is associated with finding units to replenish an item on a store shelf, or if the probability of finding is associated with just seeing if the item is physically and currently on a store shelf.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 3-11, 13-24, 26-34, 36-44 and 46-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zoltners et al., "Integer Programming Models for Sales Resource Allocation" (March 1980) and Hillier et al., "Introduction To Operations Research" (1995).

As per claim 1, Zoltners et al. discloses an apparatus that determines allocations in a business operation to maximize profit on a computer system, comprising:

a memory, a processor that accesses the memory to retrieve computer-executable instructions to perform: collecting profit data for a plurality of classes in the business operation, each class including an allocation having a cost function, and each allocation belonging to the group consisting of physical allocations and economic allocations (page 1, paragraph 2; page 2, paragraphs 1 and 2; Table 1 on pages 3 and 4; page 9, last paragraph; The reference discloses allocating sales resources such as sales budgets, sales calls, sales reps, etc., among various sales entities (i.e., classes) such as sales districts, accounts, prospects, products, etc., where the allocations are made based on expected profit results and cost data for each sales entity. The expected profit and cost are subjective data input by the user. The allocations are physical (i.e., geographic regions) as well as economic (i.e., sales budgets.);

determining profit functions for the allocations from the profit data by:

determining demand distributions for the allocations from the profit data and determining each profit function from a corresponding demand distribution (page 2, paragraph 2; (M3) on page 11; Table 1; The sales response, or demand, function represents the sales tradeoff which can be expected from various resource allocation strategies.).

formulating a Multiple Choice Knapsack Problem to maximize profit from the profit functions, the cost functions, and a cost constraint ((M1) on page 9; (M3) on page 11; M1 and M3 are Multiple Choice Knapsack models that maximize the profit based on various resource allocations and cost constraints.); and

solving the Multiple Choice Knapsack Problem to determine values for the

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allocations (the illustrated applications on pages 9 and 10; The Multiple Choice Knapsack model is solved for various sales resource allocation strategies such as sales representative time management and sales force resource allocation.).

While Zoltners discloses determining a model for sales resource allocation that maximizes profit using time periods and allocation strategies for sales entities, or products (page 8), Zoltners et al. does not expressly disclose that a profit function is determined for a time interval between *restocking cycles* and a *probability* that is associated with *inventory replenishment*. Hillier et al. discloses determining stochastic models using demand probability distribution functions to solve inventory-related problems (pages 772-774). More specifically, Hillier et al. discloses single-period and two-period models that solve the problem of determining the amount of inventory to replenish for a time interval based on the probability of demand for the item (pages 773-775). Thus, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to apply the more general profit maximizing models that use allocation strategies across time periods of Zoltners et al. to the more specific models as taught by Hillier et al. because doing so allows the models of Zoltners et al. to be used for specific sales-profit applications such as inventory replenishment, which enhances the flexibility of the more general models of Zoltners et al. by allowing the general models to be modified as needed to solve specific business problems.

As per claims 3 and 4, Zoltners et al. discloses the apparatus according to claim 1, wherein each demand distribution includes a Poisson model or a Markov model (row

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4 on page 3; row 2 on page 4; The reference discloses using both Poisson and Markov models in its sales resource allocation strategies.).

As per claim 5, Zoltners et al. discloses the apparatus according to claim 1, wherein each demand distribution includes a normal distribution model (paragraph 2, page 2; row 5 on page 5; The reference discloses applying concave functions, also known as bell-curve and normal distribution models to its resource allocation strategies.).

As per claim 6, Zoltners et al. discloses the apparatus according to claim 1, wherein the allocations include spatial allotments (paragraph 1, page 2; sales representative time management and sales force resource allocation on pages 9 and 10; The reference discloses spatial allotments such as deciding how to allocate time to sales representatives or products across sales territories.).

As per claim 7, Zoltners et al. discloses the apparatus according to claim 1, wherein the allocations include monetary allotments (paragraph 2, page 1; paragraph 2, page 18; The reference discloses the decision of allocating sales budgets across products and/or markets.).

As per claims 8-10, Zoltners et al. discloses the apparatus according to claim 1, wherein the cost constraint is a greater-than-or-equal-to inequality constraint, an equality constraint or a less-than-or-equal-to inequality constraint (page 11; Model (M3) illustrates equality, greater-than-or-equal-to and less-than-or-equal-to inequality constraints.).

As per claim 54, Zoltners et al. discloses the apparatus of claim 1, wherein determining demand distributions for the allocations from the profit data comprises: modeling the demand distributions with corresponding probabilistic functions (row 1 on page 5; The reference discloses applying probability estimates to the resource allocation strategies.).

As per claim 55, Zoltners et al. does not expressly disclose the apparatus of claim 1, wherein the probability corresponds to finding any number of units of an item on a store shelf. Hillier et al. discloses a one-period model that solves the problem of determining the amount of inventory to replenish for a single time interval based on the probability of demand for the item, where the probability of demand corresponds to finding or restocking the items sufficiently so as to meet the demand and maximize profit and/or minimize cost (pages 773-775 and 783-787). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to apply the demand probability functions in the more general profit maximizing models of Zoltners et al. to a more specific probability such as finding any number of units of an item on a store shelf because doing so allows the models of Zoltners et al. to maximize profit for inventory replenishment, thus enhancing the flexibility of the models of Zoltners et al.

Claims 11, 13-24, 26-34, 36-44 and 46-53 recite substantially similar limitations to claims 1, 3-10, 54 and 55 above. Therefore, claims 11, 13-24, 26-34, 36-44 and 46-53 are rejected on the same basis as claims 1, 3-10, 54 and 55 above.

Response to Arguments

7. Applicant's arguments are moot in view of the new grounds of rejection provided above.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Bradford et al. "A Bayesian Approach to the Two-Period Style-Goods Inventory Problem with Single Replenishment and Heterogeneous Poisson Demand," *The Journal of Operational Research Society*, Mar 1990 [retrieved from Proquest] discusses a model used to solve an inventory problem; and
- Kim, Se-Kwon. "An analysis of inventory stockout models, " *The Pennsylvania State University*, 1991 [retrieved from Proquest] discusses inventory models.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to C. Michelle Tarae (formerly, C. Michelle Colon) whose telephone number is 571-272-6727. The examiner can normally be reached Monday – Friday from 8:30am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz, can be reached at 571-272-6729.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).



C. Michelle Tarae
Patent Examiner
Art Unit 3623

January 20, 2006